

ENTOMO-ECOLOGICAL ASSOCIATIONS

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Coevolution and Systematics. A. R. Stone and D. L. Hawksworth (eds.). 1986. Systematics Association Special Volume No. 32.

The re-assertion of systematics in its rightful place in evolutionary biology was recently engendered by advances in phylogeny reconstruction. Of particular import has been recent phylogenetic inquiry into the evolution of species' interactions.

Ehrlich and Raven's model of coevolution was based on well-known parallels between lepidopteran taxonomy and that of their hostplants, though most of the subsequent research has been on microevolutionary aspects of the interactions. There is new interest in the macroevolutionary consequences of insect/plant interactions, however, and phylogenies can provide evidence on the sequence of reciprocal adaptations between species, their effect on diversification rates, and (the theme of this volume) the frequency of parallel phylogenesis between interacting lineages.

Systematists have long suggested that the classifications of hosts and parasites should be reciprocally informative. The volume examines the "rules" for inferring parasite relationships from those of their hosts. The chapters cover a taxonomically diverse assemblage of both animal and plant parasites, and agree in finding little empirical support for parasitological "rules." However, many more general phylogenetic questions have emerged and evidence on these should illuminate the role of interactions in the diversification and macroevolution of characters affecting the interactions.

The analyses and information in each chapter should give the volume lasting value to scientists interested in the evolution and ecology of antagonisms. Several chapters review the biologies of major higher taxa (e.g., Eastop on aphids, Beveridge on marsupial helminths). Some focus on rigorous analyses of "parallel phylogenesis" (e.g., Humphries et al. on *Nothofagus* and its herbivores; Lyal on bird/mammal lice; Thompson on Umbelliferae and herbivores). Most of the authors present the results of searches for vicariance patterns and little attention is paid to other possible systematic regularities (i.e., directional change in parasite obligateness or specialization) in the phylogeny of particular antagonisms. Quantitative analyses of vicariance/dispersal hypotheses are also absent, but the statistical methods for such tests are just now becoming available in the literature.

Finally, many authors (e.g., Barrett, Parlevliet, on the genetics of host specificity) relate the persistence of particular interactions to their ecology or genetics. Thus, despite the volume's emphasis on systematics (suggested by the title), the coverage of this new subdiscipline is synthetic, and future syntheses of these approaches in the study of particular systems should serve to invigorate our common field of evolutionary research.